

# LP100

## Continuousline Recorder



### FEATURES

- 1 to 4 measuring channels
- Format 144 mm x 144 mm; installed depth 250 mm
- Combined chart unit; roll or folded
- Write width: 100mm
- Measuring channels galvanically separated and ungrounded

### ABOUT

The Line Printer LS100 is a microprocessor-controlled continuous-line recorder. It is supplied in versions with 1 to 4 measuring channels.

The recorder is coupled to a transmitter and used to measure process signals.

High electromagnetic compatibility (EMV) and high common-mode and normal-mode rejection features guarantee trouble-free use of the Line Printer LP100, even under rough ambient conditions.

### 4 DIFFERENT MODELS

- LP101 – One channel
- LP102 – Two channels
- LP103 – Three channels
- LP104 – Four channels

### STANDARD

- 95V..240V AC/DC
- Plastic door
- (Top) No scale or 0 to 100
- (Down) No scale

### OPTIONS

- 24 V...85 V AC/DC
- Metal door with glass
- Custom demand
- Custom demand



## Specifications

## Continuous-line Recorder

### Power supply Power supply unit

95 V, -10 % ... 240 V, +10 % UC  
24 V, -25% ... 85 V, +10 % UC  
Frequency range: 47.5...63 Hz  
Power consumption:  
max. complement approx. 20 W / 25 VA

### Measuring section

Deviation: Class 0.5 to IEC 484  
Dead zone: 0.25 % of scale span  
Response time (selectable per channel)  
2, 5, 20, 60 s

### Measured variable / measuring ranges

Direct current  
0...20 mA; Ri, = 40 Ω  
4...20 mA; Ri, = 50 Ω  
Direct voltage  
0...10 V, Ri = 500 kΩ

### Effects

Temperature  
0.2 % / 10 K  
Supply voltage  
0.1 % for 24 V, -25 % ... 85 V, +10 % UC  
0.1 % for 95 V, -10 % ...240 V, +10 % UC  
Parasitic voltage  
0.5 % of measuring span  
External magnetic field 1 mT  
0.5 % of measuring span  
Mechanical capability  
during and after effect  $\pm 0.5$  % of measuring span

### Electromagnetic compatibility

The protection objectives of the EMC regulation 2014/30/EU on interference suppression acc. to EN 61326-1:2013 and regarding interference immunity acc. to EN 61326-1:2013 are met

Electromagnetic compatibility: Industrial environment  
Electromagnetic disturbance: Class B

### RoHS Directive 2011/65/EU

Applied standards: EN 50581:2012

### General and safety data Environmental capabilities

Climatic category 3K3 acc. to  
DIN IEC 721-3-3

Ambient temperature  
0...25...50 °C

Transport and storage temperature  
-40...+70 °C

Relative humidity (device in operation)  
<75 % annual average, max. 85 %  
Avoid condensation. Pay attention to  
air humidity on recording paper acc.  
to DIN 16 234

### Mechanical capabilities

Tested acc. to DIN IEC 68-2-27 and  
DIN IEC 68-2-6 during transportation

Shock 30 g/18 ms  
Vibrations 2 g/5...150 Hz

In operation  
Vibrations 0.5 g /  $\pm 0.04$  mm / 5...150 Hz / 3  
x 2 cycles

**Specifications**

**Continuous-line Recorder**

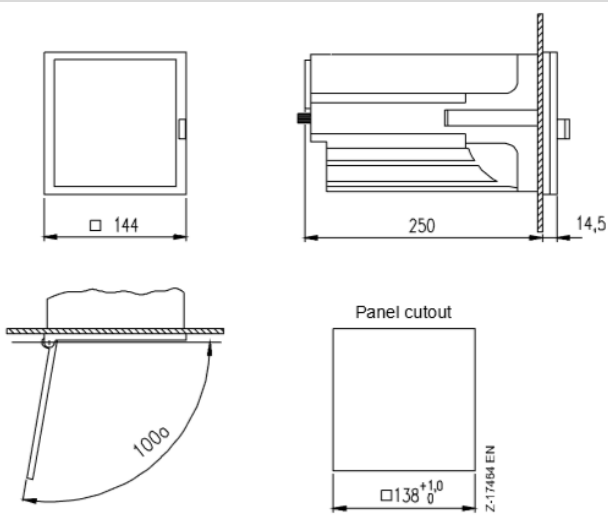
**International standards**

IEC 484	DIN 43 782	Compensation recorders
IEC 1010-1	DIN EN 61 010-1	Electrical Safety (Test voltages)
IEC 664	VDE 0110	Insulation class
IEC 68-2-6	DIN IEC 68-2-6	Mechanical capabilities (Vibrations)
IEC 68-2-27	DIN IEC 68-2-27	Mechanical capabilities (Shock)
IEC 529		Degree of protection
IEC 801	DIN VDE 0843	Immunity of electromagnetic interference
EN 60 801		
IEC 721-3-3	DIN IEC 721-3-3	Environmental capabilities
IEC 742	DIN EN 60 742	VDE 0551 classification Safety transformer

**German standards**

DIN 16 230	Recording chart paper
DIN 43 802	Scales
DIN 43 831	Cases

Dimensional diagram (dimensions in mm)



**Recording**

**Scale**

One graduation depending on measuring system  
Scale plate width: 5 mm  
Character size: 2 mm

**Recording**

Fibre-tip pen with ink reservoir  
Content approx. 1.4 ml, trace length approx. 1300 m  
Space between fibre pen tips 2 mm

Arrangement of measuring elements and colour assignment:

	LinePrinter LS100			
	Number of line channels			
	1	2	3	4
			X	X
		X	X	X
	X	X	X	X
				X

**Chart Speed**

Speeds 1/5/10/20/60/120/300 and 600 mm/h selectable on display panel

**Charts**

32 m chart roll or 16 m fouled paper

**Visible Diagram length**

60 mm

**Recording width**

100 mm (chart width 120 mm, DIN 16 230)

**Chart feed-in (for chart roll)**

automatic paper intake by the take-up reel (daily diagram outline or unwinding of 32 m possible)

**Initial equipment**

**(part of delivery scope)**

- 1 Operating Manual; 2 fasteners
- 1 Rolled or folded chart paper, laid in the unit
- 1 Fibre-tip recording pen per measuring channel

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**Specifications**

**Continuous-line Recorder**

Interference immunity: Tested acc. to IEC 801

Type of test	Test intensity	Effect	Severity
Burst (5/50 ns) on mains line measuring line	2 kV	≤ 1 %	3
	1 kV	≤ 1 %	3
Surge (1,2/50 μs) on mains line common differential	2 kV	≤ 1 %	3
	1 kV	≤ 1 %	2
HF field radiated 80 MHz...1 GHz conducted 0.15...80 MHz	10 V/m	≤ 1 %	3
	10 V	≤ 1 %	3
1 MHz pulse on mains line common differential	2 kV	≤ 1 %	3
	1 kV	≤ 1 %	3
ESD (1/30 ns)	6 kV	≤ 1 %	3

The NAMUR industrial standard RMC are met.  
(Interface lines shielded)

**Permissible parasitic voltages**

Serial parasitic voltage peak to peak	< 0.3 x measuring span max. 3 V
Normal mode rejection	75 dB
Common mode parasitic voltage	60 V DC / 250 V AC
Common mode suppression	83 dB for DC 96 dB for AC

**Electrical safety**

Tested acc. to DIN EN 61 010-1  
(classification VDE 0411) or IEC 1010-1

Protection class I

Overvoltage category  
III at mains input  
II at inputs and outputs

Degree of pollution  
2 within the unit and at the connection terminals

Test voltage  
3.75 kV measuring channels to power supply  
2.20 kV protection cable to power supply

Functional extra-low voltage (PELV)  
between mains input – measuring channels,  
control lines, interface lines  
to VDE 0100 part 410 and VDE 0106 part 101

Connection, housing and mounting

Electrical connections  
Degree of protection IP 20  
Screw-on connector terminals for measuring inputs  
Max. wire cross-section 2 x 1 mm<sup>2</sup>  
Screw-on terminals for mains connection  
Max. wire cross-section 1 x 4 mm<sup>2</sup>

Housing  
Moulding material for panel and mosaic  
panel mounting  
(dimensions see dimensional diagram)

Type of case protection acc. to IEC 529  
Front panel IP 54; Rear IP 20

Case colour  
Pebble grey to RAL 7032  
or grey-white to RAL 9002

Case door  
Moulding material  
option: metal frame door with glass

Mounting orientation  
lateral (-30°...0...+30°), inclination towards  
the back 20°, towards the front 20°

Mounting distance  
horizontal or vertical 0mm, case door  
must open at 100°

Weight approx. 3kg

Ordering information

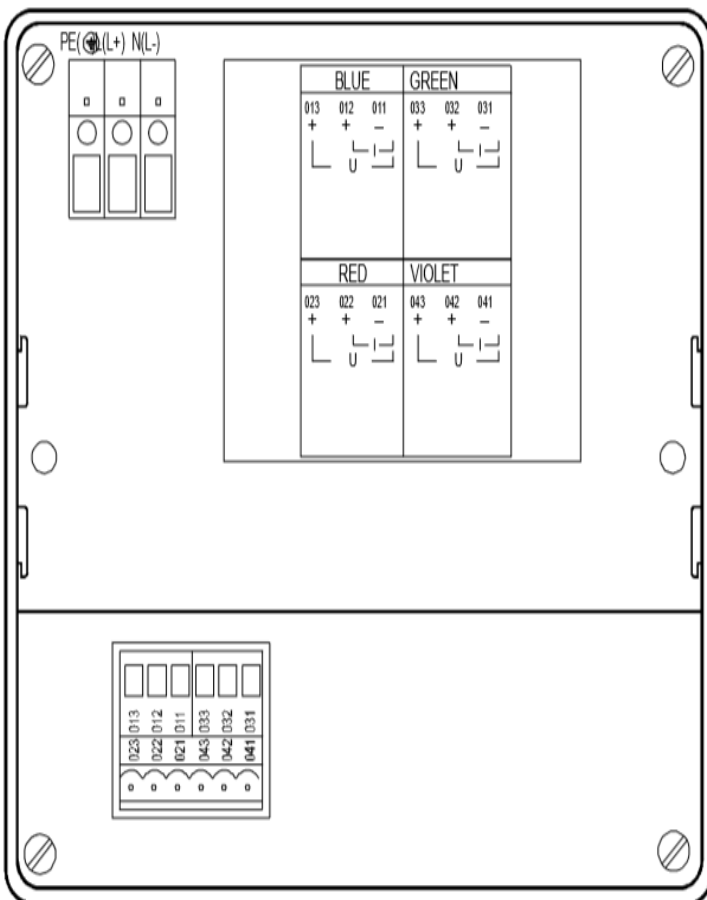
Continuous-line Recorder

<b>Items - No.</b>	<b>80061 -</b>								
<i>LinePrinter LS100</i>									
<b>Version</b>									
1 measuring channel	M1								
2 measuring channels	M2								
3 measuring channels	M3								
4 measuring channels	M4								
<b>Measuring range (same for all channels)</b>									
0...20 mA, 0...10 V DC	A1								
4...20 mA	A2								
<b>Power supply</b>									
95 V...240 V AC/DC				E5					
24 V...85 V AC/DC				E6					
<b>Recording</b>									
on rolled chart paper (32 m)					R1				
on folded chart paper (16 m)					R2				
<b>Case</b>									
RAL 7032 with moulded door						T1			
RAL 9002 with metal frame door						T3			
Create the required Code No. for each channel									
<b>Line channel</b>									
1 measuring channel						S3			
2 measuring channels						S4			
3 measuring channels						S5			
4 measuring channels						S6			
<b>Scale: (without ruler) numeral height 2 mm; scale height 5 mm</b>									
without							4	0	
0...100							4	1	
as specified (clear text)							4	2	
<b>Measuring point label</b>									
without						V5	0	0	
with label (height 3 mm, max. 31 character/channel) (clear text)						V5	7	7	

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Connection diagrams

Continuous-line Recorder



Z-17962

Signal inputs

